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MTC510

Epoxy Component Prepreg

Introduction

MTC510 is an epoxy resin system designed to cure between 175°F and 250°F allowing flexibility in component manufacture. It is a toughened epoxy resin system designed for component manufacturing that can be supplied on a variety of fabrics and in UD format to meet your cost and manufacturing requirements.

Typical applications: General purpose - Visual

Key Features & Benefits

- Cure temperature from 175°F to 250°F
- Service temperature up to 250°F
- Low CTE and shrinkage
- Work life at 70°F: 30 days
- Storage life at 0°F: 12 months
- Very low VOC content no added solvents during manufacture
- Excellent surface finish

Storage & Out Life

Revised: 20th July 2022

This material should be kept frozen at 0°F. It must be kept sealed in a polythene bag which must not be opened until fully thawed to room temperature. If the material is not fully used, then the material must be resealed in the polythene bag to prevent moisture absorption.

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Cure Cycles & performances

CURE CYCLE OPTIONS:

Cure		Initial Min Cure		Tg
175°F	(minimum)	16 h	nours	195°F
195°F		8 h	nours	210°F
210°F		4 ł	nours	230°F
250°F	(maximum)	1 h	nour	265°F

- Curing Schedule is meant to be a guide only and is subject to local conditions.
- To avoid exotherm particular care must be taken with thick laminates.
 Ramp rates must not exceed 5°F per minute during initial cure.
 Ramp rates must not exceed 1°F per minute during post cure (free standing).

• Typical Tg:

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DMA – Dry Tg	250°F for 1hr	Tg E' Onset	268 °F	Modified ASTM D7028
		Tg Peak Tan δ	298 °F	(Single Cantilever)

Tests performed on MTC510-C415T-HS-12K-38%RW laminates

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Cured Material Properties

Tests performed on MTC510-C200T-HS-3K-42%RW laminates

(200gsm 2x2 twill, T300 3k carbon fabric)

Test	Results			Standard
Vf	Fibre volume fraction	49.41	%	BS EN ISO 14127
				Method B
СРТ	Cured ply thickness	0.237	mm	BS EN ISO 14127
				Method B
Tensile 0°	Tensile strength	634	MPa	BS EN ISO 527-4
	Tensile modulus	55.7	GPa	
	Poisson's ratio	0.05		
Tensile 90°	Tensile strength	680	MPa	
	Tensile modulus	56.7	GPa	
	Poisson's ratio	0.05		
Compressive 0°	Compressive strength	683	MPa	prEN 2850 Type B
	Compressive modulus	51.0	GPa	
Compressive 90°	Compressive strength	691	MPa	
	Compressive modulus	52.6	GPa	
Flexural 0°	Flexural strength	946	MPa	BS EN ISO 14125
	Flexural modulus	56.7	GPa	
Flexural 90°	Flexural strength	885	MPa	
	Flexural modulus	53.2	GPa	
In-Plane Shear ±45°	In-Plane shear strength (5% strain)	65.3	MPa	BS EN ISO 14129
	In-Plane shear strength (ultimate)	115.0	MPa	
	In-Plane shear modulus	3.42	GPa	
Interlaminar Shear 0°	Interlaminar shear strength	71.1	MPa	BS EN ISO 14130
Interlaminar Shear 90°	Interlaminar shear strength	70.9	MPa	
DMA – Dry Tg	Tg E' Onset	260	°F	Modified ASTM D7028
Initial cure	Tg Peak Tan δ	279	°F	(Single Cantilever)
DMA – Wet Tg	Tg E' Onset	194	°F	
14 days in water at 160°F	Tg Peak Tan δ	212	°F	

Mechanical testing carried out at 70°F±4°F. Initial cure: 15mins at 185°F followed by 1hr at 250°F, autoclave 6bar. All figures in this report are actual test results and have not been normalised. Testing was either completed by SHD Composites laboratories, or independently by UKAS approved organisations. Complete test reports can be supplied independently upon request.

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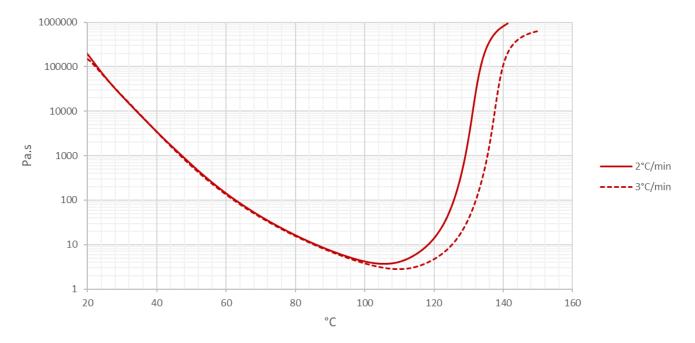
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Viscosity Profile

Testing carried out using a rotational rheometer.



Health and Safety

This material contains epoxy resin which can cause allergic reactions with skin contact and must avoid repeated and prolonged skin contact.

Please refer to the product Safety Data Sheet before using this material. The following precautions must be taken when using epoxy resin prepregs:

- Overalls must be worn.
- Impervious gloves must be worn.
- Curing schedule is meant to be as a guide only and is subject to local conditions.
- To avoid exotherm, particular care must be taken with thick laminates.
- Ramp rates must not exceed 5°F/min during initial cure and 1°F/min during post cure.

Disclaimer: Technical advice, instruction, data or recommendation, whether verbal or in writing, is given in good faith. The SHD company providing any such advice gives no warranty or guarantee, whether express or implied, in relation to such advice.

Customers must carry out their own tests and assessments as necessary in order to determine the quality and suitability of the product for their particular application and circumstances. Such testing should be performed under conditions identical to those to which the final component/product may be subjected. Values listed in any SHD document are for typical properties of the product or substance in question and are not intended to be used in establishing either statistical specifications nor engineering basis values. They do not constitute either minimum or maximum values for the product or substance in question.

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